

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Mark Sincell on September 26, 2008.

The application has been amended as follows:

Claim 1 has been amended to read as:

A strip loaded waveguide apparatus, comprising:

a substrate;

a first layer of waveguiding material above the substrate, the first layer having a first index of refraction, a first horizontal dimension, and a first vertical dimension; and

a second layer of waveguiding material adjacent the first layer, the second layer having a second index of refraction, a second horizontal dimension, and a second vertical dimension, wherein the first index of refraction, the first horizontal dimension, the first vertical dimension, the second index of refraction, the second horizontal dimension, the second vertical dimension and the arrangement of the first and second layer are arranged to perform an optical mode transformation of light input into the apparatus, wherein the second vertical dimension is smaller than the first vertical dimension, the second horizontal dimension is smaller than the first horizontal dimension, and the second index of refraction is larger than the first index of refraction.

Claim 5 has been cancelled.

Claim 6 has been amended to depend from claim 1.

Claim 7 has been amended to depend from claim 1.

Claim 13 has been amended to read as:

An apparatus, comprising:

a substrate;

a first layer of waveguiding material above the substrate, the first layer having a first index of refraction;

a second layer of waveguiding material above the first layer, the second layer having a second index of refraction; and

an active element above a portion of the second layer, the active element having a third index of refraction selected such that a portion of the selected electromagnetic mode propagates in the active element, wherein the first index of refraction, the second index of refraction, the third index of refraction and the arrangement of the first and second layers and the active element are selected such that the apparatus performs an optical mode transformation of light input into the apparatus, wherein the first layer of waveguiding material has a first horizontal dimension and a first vertical dimension, wherein the second layer of waveguiding material has a second horizontal dimension and a second vertical dimension, and wherein the second vertical dimension is smaller than the first vertical dimension and the second horizontal dimension is smaller than the first horizontal dimension.

Claim 16 has been cancelled.

Claim 17 has been amended to depend from claim 13.

Claim 26 has been amended to read as:

A method, comprising:

forming a first layer of waveguiding material above a substrate such that the first layer has a first index of refraction, a first horizontal dimension, and a first vertical dimension; and

forming a second layer of waveguiding material above the first layer such that the second layer has a second index of refraction, a second horizontal dimension, and a second vertical dimension, wherein forming the first and second layers comprises selecting the first index of refraction, the first horizontal dimension, the first vertical dimension, the second index of refraction, the second horizontal dimension, the second vertical dimension and the arrangement of the first and second layer so that the first and second layers of waveguiding material perform an optical mode transformation of input light, wherein forming the second layer comprises forming the second layer such that second vertical dimension is smaller than the first vertical dimension, the second horizontal dimension is smaller than the first horizontal dimension, and the second index of refraction is larger than the first index of refraction.

Claim 28 has been cancelled.

Claim 33 has been amended to read as:

A method, comprising:

forming a first layer of waveguiding material above a substrate, the first layer having a first index of refraction, a first horizontal dimension, and a first vertical dimension;

forming a second layer of waveguiding material above the first layer, the second layer having a second index of refraction, a second horizontal dimension, and a second vertical dimension, the second vertical dimension being smaller than the first vertical dimension, the

second horizontal dimension being smaller than the first horizontal dimension, and the second index of refraction being larger than the first index of refraction such that a selected electromagnetic mode propagates in a portion of the first layer approximately defined by the second horizontal dimension and the first vertical dimension;

forming an active element above a portion of the second layer, the active element having a third index of refraction such that a portion of the selected electromagnetic mode propagates in the active element; and

inputting light in an initial electromagnetic mode into a strip loaded waveguide formed by the first layer, the second layer and the active element and transforming the input light into the selected electromagnetic mode, wherein forming the active element comprises forming the active elements having the third index of refraction that is larger than the first and second indices of refraction.

Claim 35 has been cancelled.

Claim 39 has been amended to read as:

A system for transforming optical wave modes,
comprising:

an optical wave mode transformer optically coupled to a light source that is configured to emit light in an initial electromagnetic mode, the optical wave mode transformer comprising:

a first layer of waveguiding material above a substrate, the first layer having a first index of refraction, a first horizontal dimension, and a first vertical dimension; and

a second layer of waveguiding material above the first layer, the second layer having a second index of refraction, a second horizontal dimension, and a second vertical dimension; and

an optical element that is optically coupled to the optical wave mode transformer to receive a selected electromagnetic mode, wherein the first index of refraction, the first horizontal dimension, the first vertical dimension, the second index of refraction, the second horizontal dimension, the second vertical dimension and the arrangement of the first and second layer are arranged to perform an optical mode transformation of the light input into the strip optical mode wave transformer from the light source so that the selected electromagnetic mode differs from the initial electromagnetic mode, wherein the second vertical dimension is smaller than the first vertical dimension, the second horizontal dimension is smaller than the first horizontal dimension, and the second index of refraction is larger than the first index of refraction.

Claim 41 has been cancelled.

Claim 42 has been amended to depend from claim 39.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: the prior art of record fails to teach or fairly suggest the limitations of the claims, as currently amended.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARY A. EL SHAMMAA whose telephone number is (571)272-2469. The examiner can normally be reached on M-F (8:30am-5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571.272.2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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